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1. (Currently Amended) A method for preparing a photocatalyst containing titanium dioxide, characterised in that from an acid solution containing titanium oxysulphate at a temperature under the boiling point of the solution is precipitated by addition of crystal nuclei a sulphurous titanium dioxide hydrate precipitate, said precipitate being separated and subsequently subjected to thermal treatment in order to obtain a crystalline product with a sulphur content of 1 to 5 w%;

and wherein the precipitation is conducted without addition of base in a temperature range from 70 to 100°C and the precipitate separated from the solution is calcinated in air in the temperature range from 100 to 500°C.

2-3. (Cancelled)

2 ~~1~~. (Currently Amended) A method as defined in claim ~~3~~ 1, characterised in that the crystal nuclei are anatase.

5. (Cancelled)

3 ~~2~~. (Currently Amended) A method as defined in claim 1, characterised in that the solution containing titanium oxysulphate is obtained by reacting ilmenite and ~~superic~~ sulphuric acid, by dissolving the sulphate thus formed and by removing at least part of the iron from the solution by reduction into ferrous form and crystallisation.

4 ~~3~~. (Original) A method as defined in claim ~~2~~ <sup>3</sup>, characterised in that ferric iron is left in the solution, so that the

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titanium dioxide hydrate precipitate obtained contains iron.

5 8. (Previously Presented) A method as defined in claim 1, characterised in that a chromium (III) compound is added to the precipitate before the thermal treatment.

6 9. (Previously Presented) A method as defined in claim 1, characterised in that an iron compound is added to the precipitate before the thermal treatment.

7 10. (Currently Amended) A photocatalyst obtained by a method according to claim 1, the photocatalyst containing titanium dioxide, characterised in that the crystalline particulate product has a specific surface area in the range from 100 to 250 m<sup>2</sup>/g and that the product contains 1 to 5 w%, ~~preferably 1 to 4% of sulphur~~ <sup>of sulphur</sup>.

Exr's  
Amend

8 11. (Original) A photocatalyst as defined in claim 10, characterised in that the major portion of titanium dioxide is in anatase form.

9 12. (Currently Amended) A photocatalyst as defined in claim 1, characterised in that the product contains 0.05 to 2 w% of chromium, ~~preferably 0.1 to 1%~~, and 0.05 to 0.3 w% of iron, ~~preferably 0.1 to 1.5%~~.

10 13. (Currently Amended) Use of A method for photocatalysing a reaction, comprising adding a titanium dioxide prepared as in claim 1, as photocatalyst operating at into a reaction mixture and directing visible light

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wavelengths to the photocatalyst for exciting the photocatalyst.

- 11 ~~14.~~ (Currently Amended) ~~Use of~~ A method for photocatalysing the decomposition reaction of a organic compounds and microorganisms, comprising adding a titanium dioxide prepared as in claim 1, ~~as a~~ into a reaction mixture containing organic compounds or microorganisms and directing light to the photocatalyst in the decomposition of organic compounds or microorganisms for exciting the photocatalyst.

- 12  
~~15.~~ 15. (Currently Amended)

~~Use of a~~ A coating composition comprising titanium dioxide photocatalyst prepared as in claim 1, ~~as a photocatalyst in a coating composition.~~

Exr's  
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~~Use of the~~ A coating composition comprising titanium dioxide photocatalyst prepared as in claim 1, ~~as a photocatalyst in a coating composition.~~